FOUR MODERN HOSPITALS.

By Edwin T. Hall [*F.*].

Read before the Royal Institute of British Architects, Monday, 20th April 1903.

IT is with great diffidence that I approach the subject of my paper this evening, because it relates to my own works. When invited to address you on the subject I felt an objection to intrude my own wares, but was assured that a practical paper dealing, not with hospitals in general, but with concrete examples on which I had personally laboured, would be of interest. I can only ask for your kind consideration if I tax your patience, and without further preface I will proceed.

There are four kinds of hospitals which just now are engaging a good deal of attention, viz.:

1. Those for Scarlet Fever, Diphtheria, and Enteric Diseases, which are generally grouped under one staff.
2. Those for Small-pox.
3. Sanatoria for Tuberculosis or Consumption.
4. General Hospitals.

On the walls are illustrated one of each kind, viz.:

1. The City of Leeds Fever Hospital, at Seacroft.
2. The City of Leeds Small-pox Hospital, at Killingbeck.
3. The Sanatorium, at Frimley, in Surrey, for the Brompton Consumption Hospital.
4. The Camberwell Infirmary.

A few preliminary observations on each type may be desirable.

Infectious Hospitals differ from general hospitals, principally in that they are held to require more isolation, not only of the whole, but of the parts, and greater cubic space per patient.

A Small-pox Hospital is required to be at least a quarter of a mile from any other hospital or village. The reason for this is that within that distance small-pox virus is said to be infectious and dangerous. A Local Government enquiry in 1881, in relation to a hospital in town, resulted in the Commissioner reporting that "an almost constant ratio is observed between the amount of the hospital operations and the degree of the excess of small-pox in the neighbourhood."

Scarlet Fever, Diphtheria, and Enteric Diseases are not so virulent, and a zone of forty feet is considered sufficient as a minimum for the public safety.

The cubic space required per patient for small-pox and scarlet fever is 2,000 feet, but for diphtheria and enteric 2,500 feet. I cannot but feel that these are arbitrary figures,

because much must depend on the efficient ventilation and constant change of air in a ward.

For *Consumption* there is no fixed standard, and rarely are two hospitals alike.

The treatment thirty years ago with closed windows and the avoidance of open air has now given place to open windows or none at all—indeed, to sleeping in open rooms or shelters, and manifestly the question of cubic space hardly arises where the room is partly unenclosed. Dr. Latham, in his King's Essay, suggests 1,960 feet; but in Sanatoria the actual practice varies from 1,000 to 3,000. It seems to me that floor space is of much more importance, and by that I mean space adequate to, but not exceeding, what is necessary for furniture and general convenience.

In regard to the isolation of Consumption Hospitals there is no rule, and apparently none is required, as to a safe zone. The danger of communicating this disease appears to arise primarily from the sputum of infected persons, and secondarily from bacillus-laden dust in the room in which an affected person may reside. There are consumption hospitals close bordering on main thoroughfares in cities, and, as far as I know, it has never been alleged that the inhabitants of immediately adjoining buildings or passers-by have suffered in any way. For Sanatoria the practical element which fixes the distance of a building from a highway is the necessity of guarding the patients from wind-borne dust, which may contain fæcal poisonous matter, and at the best is an irritant to the sensitive throat and respiratory organs.

General Hospitals are a class by themselves. Their location is determined (1st) by the necessity for their being in the midst of their *clientèle*, so to speak. They are wanted, broadly speaking, where population is most dense, where risks of accidents are greatest, where the indigent poor may have easiest access whether as in- or out-patients. (2ndly) They must be within easy reach of the honorary medical staff, men of the greatest practice and experience, so that (*a*) the poor man broken on the wheel of industry or vice may be promptly attended to, and (*b*) the medical schools which form so important and valuable a feature of our great hospitals may have the advantage of learning from the great masters of their art.

In these circumstances a greater number of patients per acre as compared with that of the suburban or country site of an infectious hospital becomes a necessity of the case; the height of buildings is of practical necessity greater, and, relative to height, the distance apart is much less. The planning of a general hospital in a town demands, therefore, very great care to make the most and best use of wind currents and sunlight for patients, for staff, and for schools. The minimum cubic space for patients in these hospitals has been standardised for the Poor Law patients, and with otherwise proper hygienic conditions this appears to be adequate for all, although anything more is desirable for greater convenience and the sense of greater airiness.

Much has been said at one time and another about the maximum number of patients that may be housed per acre on open sites, but there appear to be as good results with hospitals—otherwise hygienic—having a larger as compared with those having a smaller number of patients per acre.

Another item for consideration is the maximum number of patients that may be dealt with in one hospital. There appears to be no necessary limit beyond that of convenience of general medical supervision.

The Local Government Board do not favour a greater number than about 500 for an infectious hospital, and for a Poor Law infirmary about 800. As to what is adequate accommodation for any town, much will depend on the character of the

place, whether it be residential or manufacturing, whether the inhabitants are poor or well-to-do. For infectious hospitals it is usual to assume that one bed per thousand inhabitants is sufficient, but this is only a rough average, to be adjusted in consultation with the medical officer of health and a study of many circumstances. In London, for acute fever cases, 1 in 1,000 is about the present accommodation, or, allowing for convalescents, 1 in about 750. These standards are more or less for the normal requirements. Small-pox is more troublesome. We thought a few years ago it was stamped out in London, but it was imported again, and the late epidemic cost the Metropolis for hospital provision, equipment, and maintenance about £491,000. In provincial cities there appear to be cycles of small-pox. There are years and seasons and climatic conditions more favourable to its epidemic character than others, just as there are seasons when mushrooms and other fungoid growths are most luxuriant. Medical experts of the greatest experience say regular vaccination and periodical revaccination would render the disease innocuous. I am not, however, dealing with the medical aspect, but with constructional provision for dealing with the disease. The ideal course appears to be to erect a hospital of moderate dimensions, fully equipped with staff and administrative buildings on a liberal scale. This will be the first line of defence when the attack comes on, and the immediate segregation of the patients, combined with the removal of their families to quarantine cottages and the disinfection of their homes, may stamp out the disease. If, however, it unhappily spreads, then the hospital proper can be extended by tents or temporary buildings grouped round the permanent nucleus, with satisfactory results.

Consumptive Sanatoria are numerous on the Continent, particularly in Germany, where the State has taken them up. Here they are only in their numerical infancy, but they are likely to grow largely in numbers. If for no other reason, they are justified as schools of domestic and personal hygiene. Patients may or may not be healed entirely of their disease, but they are taught the value of cleanliness, of exercise, of fresh air, of regular habits, of order and self-respecting discipline, and they go back as missionaries to their families and friends.

I think we may now leave general reflections and come to particulars.

First, as to site. All kinds of infectious hospitals should be away from a densely built neighbourhood. First, for the sake of the community. Secondly, for the sake of the patient, because the air is purer, free from the smoky and other exhalations of a town, and consequently there will be more sunshine. Thirdly, the land is cheaper, and therefore larger areas can be obtained for less money than small ones in a town. As the patient will be for a considerable time resident, the cost of transport is a bagatelle. Fourthly, there will be greater choice of a suitable site on elevated ground with trees and other amenities.

For a general hospital in a town, get a site as open as possible, and preferably surrounded by roads which form wind channels to change the air. Avoid low-lying land with a shallow gravel subsoil, which is likely to be sometimes filled with subsoil water.

I have already said that public small-pox hospitals are required to have a $\frac{1}{4}$-mile zone around them. This means, in fact, that the land forming the hospital estate must be 130 to 160 acres in extent, and in the heart of this, shut in by a ring fence, must be the portion reserved for patients.

For mixed fever hospitals a zone is required to protect, not only the public, but also those suffering from different diseases. But where the site is large enough, the isolation of the pavilions or ward units should be considerable for the comfort and pleasure of the sick. Prospect, sunlight, trees, and gardens are all aids to recovery. I saw not long since the designs for a large hospital containing many wards over 100 feet long, separated only by division walls, lighted by skylights except for an end window in each ward. To my mind

nothing could be more depressing for a patient, and consequently more likely to retard his recovery, which, from the public point of view, means adding to the cost of his treatment.

Next, as to height. In the judgment of the best authorities, no hospital on a rural site should be more than two stories in height. One is the medical ideal, but it demands twice the area of land. The Metropolitan Asylums Board generally adopt the two-storied type with external staircases. At Leeds we have the one-storied. In all the best modern examples of hospitals the main wards are placed with their axes north and south when this is practicable, with windows on both sides and at the ends. Thus, every bed and every wall gets all the sunlight there is during some part of the day. Never have double wards, that is, wards with a central wall and rows of beds on each side of it.

For consumptive sanatoria, as distinct from hospitals, large wards are not adopted; the ideal is a single room for each patient with a southerly aspect in a building not more than two stories in height. In Germany, most of the best known sanatoria are of three, four, and five stories in height, but it is manifest that the necessary stairs are trying to the staff and patients, and, if power lifts be used, the expense of maintenance is greatly increased. The risks from fire are much greater, and the upper floors receive the exhalations from the lower.

On a city site relatively high buildings are, as I have said, a necessity. They will, of course, have lifts and thoroughly aërated staircases for access and for fire escape. Three or four stories are suitable.

I am not dealing with small hospitals, but have in mind those with 100 to 800 or more beds.

Some laymen not acquainted with our modern public institutions think a hospital, especially a fever hospital, is one building; but it is almost a village, with thirty to fifty separate buildings, and a staff of 200 to 300 or more persons. In one of my hospitals we had within the curtilage six miles of drains, twenty-nine miles of water and steam pipes, and forty-two miles of electric wire, and I should think at Seacroft we have eight to nine miles of drains.

I may perhaps now proceed to a description of each of the hospitals illustrated on the walls.

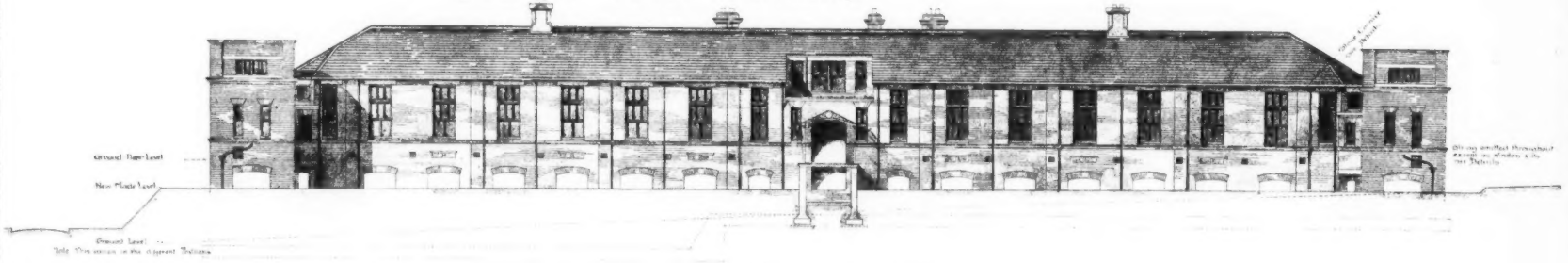
CITY OF LEEDS FEVER HOSPITAL.

The City of Leeds Fever Hospital is at Seacroft, about three miles from the centre of the city. The site was formerly a beautiful park, and, needless to say, we have kept the trees wherever possible. The area of the hospital grounds is forty-one acres, and from one end of the building to the other is about a quarter of a mile. My clients were desirous of making their hospital worthy of their city, complete and perfect from a medical and administrative standpoint, and with this view laid no restraint on me except that I was not to be extravagant, as infectious hospitals are not usually visited for pleasure. I have tried to make my buildings sedate and dignified, and above all, to assist the medical staff by applying sanitary principles throughout. It was rather an alarming instruction to me that beneath practically all the area was a worked-out coal mine, leaving a void some yards in height. On this I had to build, and to avoid local settlements in my buildings I placed each on a raft composed of cement concrete, 2 feet thick, with a gridiron of steel as a backbone. The hospital proper consists of forty-two separate buildings. It is a community in itself, presided over by a medical superintendent with three medical assistants, a lady superintendent or matron with her assistants, and a staff of 102 nurses and seventy-two female servants. The male officers and servants number about thirty-eight. Accommodation is normally provided for 452 patients, but in cases of emergency a much larger number can be received.

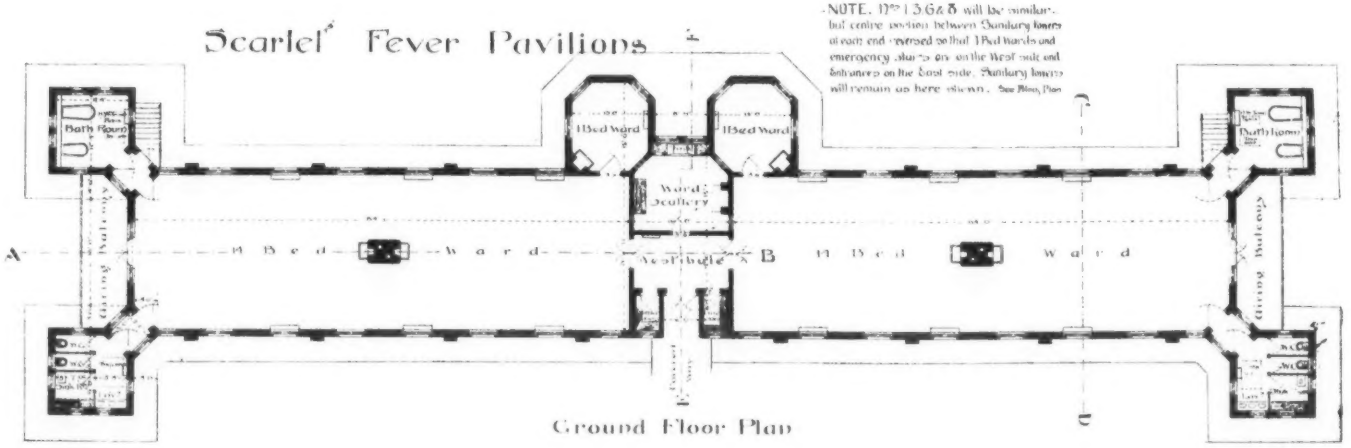
THE CITY OF LEEDS

SEACROFT INFECTIOUS HOSPITAL

Scarlet Fever Pavilions



Front Elevation


Scarlet Fever Pavilions
NOTE. Nos 1, 3, 6 & 8 will be similar but centre section between Sanitary towers at each end reversed so that 1 Bed wards and emergency shutters are on the West side and bathrooms on the East side. Sanitary towers will remain as here shown. See Block Plan
Bath Room
13 Bed Ward
13 Bed Ward
Bath Room
Ward Scullery
Glazed Balcony
A
13 Bed Ward
Vestibule
B
13 Bed Ward
Glazed Balcony
W.C.
W.C.
W.C.

Ground Floor Plan

C.F.KELL & SON, LITH. 8, FURNIVAL ST HOLBORN, E.C.

Attached to the hospital is a quarantine station of many cottages, to which infected families are removed until danger is past.

The scheme of the block plan is as follows. The main entrance from the highway is guarded by a lodge. From this a private road within the grounds runs all round the buildings, with a branch drive to each block. In the centre, within the private road, are the administrative buildings. To the east and south-east the scarlet fever wards, with a convalescent home at the north-east corner, with playing fields close by. To the south-west are the diphtheria wards, to the west the enteric wards, and to the north-west the laundry, engine and boiler houses, &c.

Grouped near the lodge are: (1) To the west, in one group, the mortuary, mortuary chapel, with waiting-room for mourners, pathological laboratory, and post-mortem room; (2) to the south of this the ambulance station; (3) a waiting-room for visitors to patients; (4) the discharge block for patients.

The medical superintendent's house is further to the east, in its private garden; the steward's house commands the road to the stores yard; cottages for sixteen married officers, engineers, &c., are further to the east, accessible only from the highway. At the extreme east is a club house for the employés, with concert room, &c.

Facing the central staff entrance is a clock and water tower, 22 feet square by 110 feet high, forming a landmark for miles around. Here we store 125 tons of water. The clock-dials, 8 feet diameter, are illuminated.

The administrative buildings consist of: (1) The offices, with residences for the matron, for the assistant medical officers, for resident porters and others; (2) the nurses' home, containing 121 rooms; (3) the female servants' home, with eighty-four rooms; (4) dining-rooms for nurses and servants between the homes and the kitchen; (5) the hospital kitchen, steward's stores, dispensary, staff consultation room, sewing room, &c.

A complete laboratory, with students' rooms, forms another building.

To the east and west of this group, on the main covered way, are patients' admission rooms to the different parts of the hospital.

Every part of the hospital is connected by glass-covered open ways, with subways beneath for steam, hot and cold water, and gas pipes, electric mains, &c.

In Germany it is not common to have covered ways, and everyone has to pass in all weathers from one part of the hospital to the other without any protection, and there are advocates of this practice in England. It seems to me to be quite a barbarous custom to expose the staff in this way, to say nothing of food, linen, and other stores, &c., distributed from the kitchen and other centres.

Subways are admittedly a practical necessity for steam, hot and cold water, and gas pipes, electric cables, telephone wires, fire alarms, and at little cost a covered way can be formed over this subway. The enclosed corridor is an error in the other direction. It too often forms a conduit for fire and smoke, and at the best is a channel for foul air and infection.

Hospital Pavilions.—It will be seen the pavilions are grouped in pairs, with fuel store and nurses' lavatories common to both on the cross corridor. Beneath these staff offices is the heating chamber. Each pavilion is axially north and south, with windows on both sides and at the ends. It has an entrance hall with the duty room opening from it. To right and left are large wards, each containing fourteen beds, and opening from these are single-bed wards, all overlooked from the duty room or ward kitchen.

Each large ward has a wide balcony at the extreme end, flanked and sheltered by the towers, containing bath rooms, lavatories, and w.-c.'s, and near these is an external flight of steps leading to the grounds.

Beneath every pavilion is a paved open basement, about five or six feet high, forming an aërial disconnection of the wards from the earth. In this all pipes and cables are placed, so that repairs can be done without coming inside the building. The smoke flues are also swept from beneath.

I have noted that we have fourteen beds per large ward. The bed unit for a ward varies: the Metropolitan Asylums Board fix it at twenty for scarlet fever, and have but one such ward on a floor. For acute cases this demands, I believe, the service of a sister or charge nurse, and two assistant nurses; but where large wards can be arranged on the same level, medical men consider the most economical unit to be fourteen beds per ward, as by making one ward for acute patients and the other for convalescents, the twenty-eight with two single-bed wards can be managed satisfactorily by the same staff.

For diphtheria the Asylums Board fix twelve per ward, as these cases require more personal attention. We have fourteen at Leeds.

Returning to the pavilion. Our ward floors are of polished teak laid direct on the concrete. Some advocate terrazzo, but that is much colder to the feet and less sympathetic than wood, and, further, it always cracks when laid in large surfaces. The walls are of cement painted and varnished to match the faïence chimney-pieces. I went to a lot of trouble some time ago in the hope of getting tinted glass in large sheets for wall covering made to be set directly on to the brick walls. My object was to get a perfectly sanitary and impervious covering with a permanent decoration. I was in correspondence with English and foreign glass-makers, but in the end we were obliged to abandon the idea as impracticable. The heating is by passing fresh air over hot-water radiators at a calculated low velocity, so as always to be changing the atmosphere of the room, and this is done completely three times an hour. The extraction is by fire and aspirating flues. On the wall I show my design for the stacks of fireplaces, smoke, and ventilating flues. These are of faïence, forming a sanitary surface of various artistic colours, and are only 3 feet in diameter. Stoves with horizontal flues in the floors should never be used in infected buildings. They are dangerous and dirty.

Heating should never be done by pipes laid in channels with gratings over. These become receptacles for dust and filth of all kinds. Horizontal pipes in a ward are again objectionable. The best form of heating is by accessible radiators fed by vertical pipes from beneath. These should be enclosed by iron cases with adjustable gratings. The inlet of cold air should be controlled to suit the varying wind pressure. Steam heating is not nearly so good as hot water. The former burns up or dries the air too much.

It will be seen we have here natural as opposed to artificial ventilation, such as that usually called the Plenum system. In my judgment the latter is a mistake in any hospital.

The windows extend to the ceiling. They consist of a pair of sashes and a fanlight with glass spandrel cheeks. The sashes are made so that cords can be renewed without taking the sash out. All angles of the walls are, of course, concave. All doors are fitted so that they cannot slam.

A word as to sanitary fittings may be of interest. Ranges of lavatories should have no long wastes, but should have short vertical straight wastes discharging into a floor channel. They should not be enclosed or have any supports on the floor. Patients' baths should be of glazed stone-ware, kept well off the floor. The bed-pan sink is an important detail, and on the wall is a drawing of one designed by me. It looks simple, and so it is, but it took many months to work out. As compared with others it has these points of simplicity—it uses about half the water of any other; no water stands in any pipe when out of use; one flush not only feeds the rim, but spreads a palm-like wave which, entering the bed-pan handle, thoroughly cleans everything.

The electric lighting consists of reversible night-lights, nurses' lamps, bedside lamps for examination of patients, &c.

Isolation Pavilions.—In addition to the main pavilions, we have four isolation pavilions. These are for doubtful or complicated cases. They consist of wards of one, two, and four beds each, with nurses' rooms and special sanitary accessories for treating different diseases.

In each of the diphtheria pavilions we have an operating room with side and top light.

Operating Theatre.—We have a small but complete operating block for severe operations, especially for enteric cases. This contains an anæsthetic lobby, a theatre, and a sterilising room.

Staff Quarters.—Taking the nurses' home, we have without extravagance everything necessary for comfort. There is a large recreation room, a writing room, a library, a third sitting-room for probationers, a suite for the home sister, ample offices, and a separate bedroom for each nurse. Every bedroom is heated by hot water, has fresh air inlet and foul air outlet. The outlets from all the rooms are connected to a trunk shaft in the roof, attached to which is an electric fan. The whole is so designed and regulated that without draught the air must be drawn from the room. This building, and, indeed, the whole hospital, is of fire-resisting construction, and it will be seen we have here three staircases, so that, humanly speaking, everyone can escape in case of fire if any one staircase is blocked by fire or smoke.

The Hospital Kitchen is a room 50 feet long with a large scullery attached. Close by is a large bakery to supply this and the adjacent hospital. Cooking is by steam, by coal, and by gas. There is a group of larders facing north and arranged with through currents of air.

The Steward's Store is 60 feet 6 inches by 25 feet 7 inches, with a gallery round. It is fitted for furniture and all kinds of general stores for the community. There is a dispensary, and close by is a room for the medical examination of staff. From this centre enclosed trolleys convey food and stores to all parts of the hospital.

The Laundry, again, is an important building. We have one for patients and another for staff. Near the entrance to both is the disinfecting house and the destructor. All unconsumed food and pieces are burnt. The disinfector is a steam one. It may be of interest to note that in some hospitals every letter written by patients or staff passes through the apparatus before being stamped and posted.

The drying of clothes should be done by hot air passing at great velocity over and through the linen and flannel. With a temperature of 160° a horse-full of the largest articles can be thus dried in 20 to 30 minutes.

The Engine-house will contain three large direct coupled dynamos to light both this hospital and the Killingbeck hospital. The heating of both will be done from this centre. It will be understood that a small-pox hospital may be vacant for months, or even for years. To have a separate boiler and engine plant in such a place means keeping a staff of men in comparative idleness merely to look after them, and then the machinery would perish from lack of use. I therefore decided to work all from the Seacroft centre, where of necessity all machinery is in daily use. Of course there is a separate laundry and disinfector at the other hospital.

A word as to the heating at Seacroft. We are at Leeds troubled with water which destroys all kinds of wrought-iron pipes, plain or galvanised. For cold water I am therefore using tin-lined iron pipes. For hot water it is generally found necessary to use copper, but with the many miles of pipes required for heating and domestic services throughout this large place, the cost was prohibitive. At present I am experimenting with a vitreous enamelled cast-iron pipe, and hope to use this. Instead of letting the exhaust steam from our various engines go to waste in the usual way, we collect it and use it for heating. In like

manner we collect all our condensed water, all the cooling water from electric engines, &c., and this is filtered and pumped at 180° into the economiser. In this way we shall, when our engines are running, do the heating and hot water supplies for nothing. This means a saving of some hundreds of pounds a year. In hospital practice it adds no small amount of labour to the architect, who wishes his building to be successful, to study and lay out the heating schemes, to weigh and consider every detail in the light of experience.

In speaking of another hospital I shall describe another type of heating.

Drainage.—In an extensive range of buildings the drainage, again, requires considerable study. It is next in importance to the buildings themselves.

The mains or hospital sewers should be efficiently ventilated in sections, so that fresh air may pass through every part. There should be no connection between the drains of the different diseases, or between any of them and those of the non-infectious staff buildings. All should be separately ventilated in short sections. There should be flushing tanks at the heads of drains, and it is my practice to carry all bath water into flushing tanks, so that the soapy mixture may go away with a rush rather than dribble and deposit soapy sediment.

The treatment of sewage is a large question, but the architect has, in conjunction with the doctor, to deal with some special points. Here we have a sewage irrigation outfall, and, naturally, there is necessity for excluding typhoid germs. There is no apparatus that I know of which deals with these dangerous enemies, and I have been engaged in devising one, of which drawings are shown on the wall. It consists in receiving tanks and boilers for alternate use. The typhoid sewage is received and boiled by steam, after which it passes to cooling beds, and thence to the outfall sewer.

I fear you will weary of so much detail, but it is all intensely pressed on your attention when you have to deal practically with hospital work.

CITY OF LEEDS SMALL-POX HOSPITAL.

The Killingbeck Hospital is situated on the top of a hill, with undulating country all around. The grounds proper are twelve acres in extent, but the total attached area is 140 acres. The approach from the road is ¼-mile in length, guarded by a lodge near the highway, with the visitors' waiting-room close by, where hospital suits must be donned before admission is given.

The hospital buildings are grouped together on the summit of the site, the offices and medical quarters being in the centre, the laundry and mortuary to the west, the discharge block to the east, all outside the hospital road.

Entering in the centre, the nurses' and female servants' homes respectively are to the west; the kitchen and stores, dispensary and serving-room to the south; the male servants' home to the east. Beyond, to the north, lie three large pavilions and two isolation blocks, while the admission block to these is at the junction of the covered ways.

Provision is made in the admission block for bathing a patient, and for his examination by the doctor; while the ambulance nurse has her rooms adjacent.

I have already gone into so much detail as to infectious hospitals generally, that I need not detain you by describing differences between this and the scarlet-fever hospital. I may, however, refer to the mortuary. You will see it has no visiting room for friends to view their dead, but it has, under a portico, a plate-glass sarcophagus, into which the body, suitably dressed, is placed from the mortuary on a rolling bed. The visitor, standing in the open air, can thus see the dead, but cannot come in actual contact with the body.

As before mentioned, this hospital will be lighted and heated, and its laundry supplied with steam, from Seacroft. To enable this to be done we tunnel under the highway and carry

he had not made these remarks at all in the way of criticism of the Paper, which he did not profess to be able to do; but having got Mr. Hall on the subject, and he having made it a speciality of his own, he thought it was only his duty as their Chairman to extract every ounce of information that he possibly could! He had the greatest possible pleasure in putting the vote of thanks proposed for this most excellent Paper.

MR. HALL, in responding, said it was a great gratification to him to know that the Meeting had found his Paper of interest. He would endeavour to answer, so far as he possibly could, the various questions put to him, and to give that last ounce of information that the President was anxious to extract! Taking the questions *seriatim*: one speaker had asked a terrible question—viz. what hospitals cost. He was rather disposed to think he had better not answer it. Hospitals were the most expensive buildings in the whole world, if they gave attention to every little detail. He had heard of an infectious diseases hospital not very long ago being built for £250 a bed. He could only say he was perfectly certain that that hospital was not built with all the modern detail now insisted on, because his experience was that a big infectious diseases hospital (he was distinguishing that from other hospitals) could not be built for less than something like £450 to £650 a bed. That was the very least; in some places they had cost a good deal more than that. An infectious diseases hospital had twice, or two and a half times, and, in some cases, three times the cubic space per bed of a general hospital, and that must be borne in mind in comparing the cost of hospitals. As to the question of radiation of plan and of aspect: Aspect, again, was relative to the particular disease. In the case of infectious diseases, the idea is to get through currents of air driven, so that foulness may be got away instantly; and one wants the very maximum of sunlight, because the people are confined to their beds. In the case of a sanatorium for consumption, however, not one person in 30 is confined to bed, and the doctors, and pretty well all the German experts, say that the best aspect for consumptive treatment is the south or south-east or south-west; in other words, to get the hottest and best sun of the day. He was asked about that radiating plan of Frimley. If they looked at it, every room of it faced either south or south-south-east or south-south-west. Each building was parallel with the opposite wing. All the northern sides were occupied by corridors simply, and there were through currents of air, of course; doors and fanlights up at the ceiling, and windows on the other side of the corridor beyond those. With regard to the covered way, he was surprised to hear that the Local Government Board ever objected to a plan with a covered way. He certainly knew of no modern hospital built under the Local Government Board which had not a covered way. He had had to pass through the Local Government Board with many of his plans, and had never had the smallest objection raised to the covered corridor; if they had raised an objection, he should have fought it tooth and nail. It was a most barbarous thing to suggest that the staff must walk for a quarter of a mile in the open during sleet and snow. They got over it in Germany, as one of their doctors had explained to him, by going down into the subway under the road and getting across that way in bad weather. Another speaker had asked whether the north balcony in the fever ward was not objectionable. No, because sometimes in the great heat of summer it was useful to put patients on the north side to get them sheltered from the scorching sun. The balcony was not used when the weather was not suitable. Camberwell was a general hospital, not an infectious diseases hospital, and they had very different cases to deal with. A hospital built essentially to deal with infection was built on different lines. But in all hospitals aëration, and plentiful aëration, was wanted. That brought him to a point raised by the President—viz. as to having an open basement beneath the pavilions. He did not think they were necessary, except in an infectious diseases hospital, where they had scarlet fever, small-pox, and such diseases. There they had this eminently practical advantage, that all the pipes and everything that fed the pavilion were in the open air, so that the workman, when he came to repair anything, did not go into the midst of infection to carry it home perhaps to his wife and family; he worked in the open air beneath. He had never had the misfortune to find his subways filled with old beds and packing-cases. It would be seen by his plan that his basements were level with the floor or the ground, and were paved all over. They were five or six feet high, and were simply a series of open arches. He could not imagine, except through some gross neglect of the medical superintendent, their ever being abused. With regard to a teak floor, he was very much surprised to hear that a doctor had said that a deal floor was as good as teak. Everybody knew that deal was very soft, and germs or anything could readily get into it. The mere passage of trolleys over it would cut it up into snags and ridges. The reason why teak was used was because it was the hardest known wood in the world, and the most lasting. The wax polishing was to keep it clean and make it free from the possibility of receiving poisonous germs. As to teak floors opening, he was afraid all wood floors opened sometimes, and it was very difficult to prevent. He could, however, say with confidence that if they asked nineteen out of twenty doctors what floor they preferred they would say a polished teak floor. Perhaps the twentieth would say he

preferred a terrazzo floor. In Germany they had terrazzo floors, and the mode of heating their wards was by flues under those terrazzo floors, so that the nurses were walking on hot bricks all the day, and, needless to say, suffered a great deal in their feet. As regards Mr. Hilton Nash's question as to the best soil for a hospital, he had said in his Paper that low-lying gravel was bad. If they could imagine a basin of low-lying gravel and a building at the bottom of it, they could see that all the subsoil water ran down and flooded the gravel with all kinds of impurities. The heat would force up the ground air in the gravel, and ground air was very poisonous. But if they were on the top of a hill of gravel they were safe. He thought that green-sand formation was the best they could get. But, of course, they must build their hospital on the soil of the district; and if it was clay for 100 miles round the city, they must of necessity put their hospital on clay. So long as the land was well drained it was all right. But the objection to clay was that it was cold, and water would not go down through it; it ran off it; and if they got a great deal of continuous water, unless the site was very precipitous, they necessarily got a damp and cold soil. With regard to the Plenum system, he thought that system very valuable where no fresh air could be got in; but where a current of fresh air was available it seemed madness to go to the expense of pumping in air through flues which necessarily became ultimately foul. With reference to thin walls, Mr. Hilton Nash mentioned that air came through thin walls, and that therefore it was beneficial. So it was if it was pure. But a building was not usually erected so that the air to feed its rooms should come in through the walls; some other provision was generally made. Air can be got through walls of almost any thickness with certain stones. Some experiments were made years ago, and the results were recorded in the text-books. But if fresh air can be made to come in, in the way it is designed to come, and to be cleaned as it comes in, it must be better than letting it come in through the wall. Again, as the President pointed out, where there are window areas there must be solid walls to carry the weight; so that in effect they do build solid walls. He personally never built a hollow wall unless he could not help doing so. The President, he thought, had rather misunderstood him when he suggested that general hospitals should be moved out into the country. He said in his Paper that infectious diseases hospitals should go into the country, because they were such a great source of danger to the neighbourhood; but he also said distinctly that general hospitals must of necessity be where their *clientèle* was, in poor and populous districts where the accidents occurred. In respect of the area of windows, there again it differed in various hospitals. The area for an infectious diseases hospital was about one-fourth of the floor area generally; but for a consumptive sanatorium he would make the whole of one side of the room of glass if he could. Dr. Walthers, of Nordrach, had built his own house so that in the summer he could take out the whole of one wall and live in the open air, and merely put the side up in the winter season. With regard to the disconnection of the sanitary towers, sanitary towers should be disconnected by cross-ventilating corridors. If they looked at the plans of Frimley Hospital they would find that they were absolutely disconnected. In Camberwell he had not absolutely disconnected them, because that was not an infectious diseases hospital, but was for general illnesses and acute cases. With reference to open staircases, he had known instances where people were too nervous to go down high open stairs. There was a danger of their falling, and therefore he had enclosed them. He had also another reason. By these enclosed staircases he was able to keep all the flanking winds from the balconies, so that the patients could sit there and bask in the sun and be sheltered from the flanking winds getting at the back of their necks. He thought that was a great boon to the patients. At Frimley he had projected the end of the pavilion for the same reason, so that the patients sitting on the terrace were sheltered from the flanking winds. With regard to pumping the water for the heating he would suggest that the system of having a calorifier in each building meant conveying live steam to it, and they had to pay for that live steam. By his system the exhaust steam was used; it was pumped up and cost nothing. That steam in the usual way would go to atmosphere, and he used it for heating. In a big institution, such as Camberwell, by using this exhaust steam the difference in maintenance per annum would be about £400. They saved that sum absolutely. They had duplicate calorifiers. It was common knowledge to everybody that in any institution where a steam boiler was used, it was only necessary to have two. If one broke down, the other was switched on; in the thousands of mills and factories all over the kingdom they never heard of one being stopped on account of the boiler breaking down. They had the same thing. If one of the calorifiers burst—and such a thing was practically impossible, for it was tested to perhaps double its working pressure; but if it did, they merely shut off the valves and opened the valves of the next one. In their scheme, also, they had two reserve mains. In the ordinary system of heating, if the steam-pipe leading to any of the calorifiers broke at a joint, every one broke down, and the whole of the building was absolutely without heat. This could not happen with their system, because they had reserve mains everywhere, and if one broke down, the others would go on just the same.

9, Conduit Street, London, W., *25th April* 1903.

CHRONICLE.

COMPETITIONS.

Stockton-on-Tees and Gillingham.

Representations have been made to the respective promoters of the Queen Victoria High School Competition, Stockton-on-Tees, and the Public Baths Competition, Gillingham, with regard to the unsatisfactory nature of the conditions.

The reply from Stockton-on-Tees is as follows: "I have your letter of the 4th inst., which I have discussed with some of the Governors; but the Conditions of Competition having been framed by an architect of great experience and to meet special circumstances, and unanimously approved by the Governors, they do not feel at liberty to depart from them."

The Clerk to the Gillingham Urban District Council, who were advised to appoint an assessor and pay their architect according to the R.I.B.A. Schedule of Charges, writes as follows: "I am instructed by the Council to acknowledge the receipt of your letter of the 6th inst., and to inform you that they consider the conditions they have issued do not need any revision. They will, apparently, be the means of causing a very large number of designs to be submitted." It is to be hoped that none of these designs will be by members of the Institute.

Excavations at Knossos.*

Mr. G. A. Macmillan, Treasurer of the Cretan Exploration Fund, has published the following telegram just to hand from Mr. Arthur Evans at Knossos:—"Important discoveries. West of north court of palace double flight of broad steps flanked by bastion leading down to paved area; apparently served as seats for spectators. Anticipation of theatre. Analogous to similar steps outside palace at Phæstos. In early building near, deposit of bronze basins, beautiful leaf and lily decoration, and bronze vase with reliefs. North-east of palace, house of fine construction running into hill-side, remains of two stories with three flights of stairs. On a landing stood tall painted jar with magnificent papyrus decoration partly in relief and unique in style. Great extension of works entailed by these various developments." This brief announcement, says Mr. Macmillan, makes it clear that the new season's work at Knossos will be at least as fruitful as that of the three previous years. It is clear also that the season's outlay has been greatly under-estimated. Setting aside £200, which has been earmarked for the excavations being carried on at Palaiokastro in Eastern Crete by the Director of the British School at Athens, it was hoped that about £1,300 would have sufficed for the completion of the work at Knossos. But not less than £2,000 will be required for this work alone, besides the deficit of more than £1,200 on the work of previous seasons. In response to previous appeals the Cretan Exploration Fund has received rather more than £1,500 for the present season's work. Of this only £1,300 are available for Knossos. To enable the explorer to carry on his splendid work without financial anxiety, the managers of the Cretan Exploration Fund desire to raise another £2,000.

* See Papers by Dr. Evans "The Minoan Palace of Knossos, Crete," Journal R.I.B.A. 20 Dec. 1902, p. 97; and Mr. Theodore Fyfe, "Painted Plaster Decoration at Knossos, with special reference to the Architectural Schemes," *ibid.* p. 107.

The Campanile Bricks.

Cav. Giacomo Boni [*Hon. Corr. M.*], in a lecture at the History Congress at Rome, gave some interesting particulars of his examination of the remains of the fallen Campanile at Venice. Great numbers of the bricks were, it appears, roughly traced by the makers with all kinds of figures, sometimes with a number, sometimes with a private mark, and sometimes with letters. One brick, for instance, had the letters "DCI." impressed on it, evidently a sign that in the particular batch to which it belonged there were some thousand one hundred odd bricks. The shape of the bricks showed that they had been used for various purposes at a previous period. Some had been utilised for arches, some for fortifications, others for tops of walls. The most important feature about them, however, is that they are not Venetian but Roman bricks. This was deduced by Signor Boni from their general appearance, shape, and texture. The bricks, apparently, when being manufactured, were not manipulated like modern bricks and made from a mass of clay already stirred up and kneaded ready for use, but were formed from slices of the clay as it was found without its natural layers being disturbed. This process resulted in each individual brick being able to support a weight quite four times as great as that which can

be borne by bricks of modern manufacture. One of the bricks, which are of the first century, had marks representing the impression of a horse-shoe, thus conclusively proving that horseshoes were known to and used by the ancients. Another brick bore an impression of the tips of a man's fingers pressed quite deep into the clay. Only about one brick in every thousand bears this impression. Signor Boni assumed that this was a private mark, used once for every thousand or so of bricks that were baked by the manufacturer. Some of the bricks showed marks left by animals which had been allowed to touch the clay before it had been baked—one showing marks made by a large dog, one by a pig, one by a calf, three by a goat, and several by sea birds.

REVIEWS.

NOTRE-DAME, PARIS; MONT S. MICHEL.

Bell's Handbooks to Continental Churches. 8o. *Lond.* 1902. *Price* 2s. 6d. *each.* [*Messrs. George Bell & Sons, York Street, Covent Garden.*]

Notre-Dame de Paris. A Short History and Description of the Cathedral, with some Account of the Churches which preceded it. By Charles Hiatt.

A Short History and Description of the Church and Abbey of Mont S. Michel, with some Account of the Tower and Fortress. By H. T. L. Massé, M.A.

It is gratifying to find that the success achieved by Messrs. Bell's excellent series of handbooks has encouraged the publishers to extend their range to the Continent; and it may be taken as a hopeful sign of the times that a well-written and intelligent account of a famous building, and a not too technical description of its architecture can be appreciated by the travelling public.

Messrs. Bell & Sons are to be congratulated on securing the services of Mr. Charles Hiatt to deal with Notre-Dame de Paris, and he certainly has made excellent use of the ample sources of information at his disposal.

The reader is not confused by unnecessary controversial matter, and the author's criticisms are weighty and worthy of respect, as witness his remarks on Viollet-le-Duc's scheme of polychrome decoration and the much debated flèche, which the reader is enabled to compare with a most interesting view of the original on p. 44. Most architects will agree with Mr. Hiatt in his remarks on Mr. Charles Herbert Moore's assertion that the Romanesque apse "produces no imposing effect." Mr. Hiatt's views are so well worthy of attention that one almost wishes he had offered his opinion on Viollet-le-Duc's work in the east and west sides of the transepts, "intended to show us the arrangement which obtained throughout the church previous to the alterations which resulted from the fire in the thirteenth century." Some people may consider it less interesting than the work it replaced.

In comparing the shallow transepts with the longer proportions of those in the greater churches of England, the author seems to overlook the different manner in which the numerous altars were accommodated: in England, by affording a certain amount of eastern wall space, and in France, by side chapels in which the altars are not necessarily placed eastwards.

In dealing with the generally expressed disappointment at the first view of Notre-Dame, both inside and outside, Mr. Hiatt's ideas strike one as perfectly just, though the lack of any imposing flight of steps to the west front may be a possible explanation in the one case; and the author does not enlighten us as to the original level of the Place du Parvis, while he seems to miss the linking together of the façade by the great arcade, which stamps this west front as so great a conception; a point most ably dealt with by Professor Pite in a Paper read before the Architectural Association some years ago.

The over-restoration of the French *monuments historiques* does not escape Mr. Hiatt's well-merited criticism, though he deals with that at Notre-Dame most leniently; too much so, many will think.

In addition to the ample and excellent photographic illustrations, several reproductions of etchings by Méryon and Pennell are given, together with several interesting old views; and some results of Viollet-le-Duc's facile pen are laid under contribution. An excellent plan is included, though it is to be regretted that the vaulting and arcade lines have been omitted.

That a place of such surpassing interest as Mont S. Michel demands exceptional treatment in any handbook is a truism which Mr. Massé fully recognises; for, as he remarks in the preface, "it is unique." And to anyone who has taken a deeper interest in the visit to the famous Mount than that of the casual cheap-tripper, and on whom the glamour of its mediævalism has cast a sufficient spell to lead him to investigate the mass of literature relating thereto, this little work will prove a real boon. That Mr. Massé has done his work well cannot be denied; and he has contrived to condense in his 128 pages much useful and valuable information.

If this work serves no other useful purpose Mr. Massé deserves thanks for calling attention to the disastrous results of the so-called restoration, which is effacing the mediævalism of this world-famous place. The architect or the antiquary who has not kept touch with the place will be alarmed at the results as chronicled by Mr. Massé, and the prospect of further efforts in this direction are anything but re-assuring; and, coupled with the modernising of the town, will be the cause of keen regret. Mr. Massé has a good deal to say on this

question, and though making full allowance for the outcome of necessary reparation and the valuable discoveries incidental to the works, is justly severe on the disastrous passion for reconstruction under the name of restoration, which ruins so many buildings unfortunately scheduled as *monuments historiques*. Not content with rebuilding the tower, it appears that the nave of the Abbey Church is not only to be totally reconstructed, but lengthened to its original seven bays, and the Merveille will not escape. The interior and exterior of the church choir have been undertaken—the cloister and charter room were entirely rebuilt from 1877 to 1881—and the refectory has received attention. A view of the cloister gives an idea of the modernising character of this work, and the effect of the glazed roof-tiles is deplorable. Mr. Massé wisely quotes some remarks of the Rev. J. L. Petit, from the preface to his *Architectural Studies in France*, which are worth repeating: "Occasionally repair may be necessary, both with a view to the stability of the fabric, and the purposes assigned to it; but beyond this the architect who respects the works of our mediæval ancestors ought not to go. The cases in which the rebuilding of the whole, or a great part, of an old fabric is demanded, will probably be found to be more rare and exceptional than we are at present disposed to imagine; and even the repair of sculptural decoration, and especially the reproduction of ornaments belonging to the earlier styles, is, I take it, altogether wrong in principle." Though Mr. Massé very fairly gives the opinion of M. P. Gout in opposition to the foregoing, he places the responsibility on what he terms the pernicious example of M. Viollet-le-Duc, whose well-known view is also quoted, but adds: "It is not restoration any more than the work carried out at the cathedral churches of Bristol or St. Albans." To add to the disquiet which all the foregoing cannot fail to create, we learn that the causeway is anything but an unmixed blessing, as the currents which formerly circled round the Mount now spend their energies on the foundations, which have had to be renewed in many places.

What with the causeway, the tramway, the cheap trips from Paris, the "restorations," the tendency to modernise the town, and the incongruous if useful telegraph office—the romantic charm which has fascinated every visitor, however callous, will soon be a thing of the past. It seems incredible that Frenchmen can be indifferent to the fate of their priceless gems of architecture.

It is hardly necessary to add that the numerous photographic illustrations are excellent—that of the interior of the almonry being especially a work of art. The drawings by M. Ed. Corroyer should be mentioned, and the four pages of plans lend value to a most useful little work.

A. Needham Wilson.

OBSTRUCTION TO LIGHT.

Re Obstruction to Light. By Henry Bridges Molesworth, M.I.C.E. [London: E. and F. Spon.]

Mr. Molesworth has endeavoured in this book of sixteen pages to show by graphic methods how the obstruction of new buildings to easements of light may be determined. In the introduction he suggests that most authors on this subject have neglected vertical perspective. But it is not necessary or correct to distort the view of a window in order to ascertain the amount of light obtained through it at any point. Such amount must of course be calculated in solar degrees. If diagrams were to be drawn showing the light obtained or lost at any point in a room in such a way that the light were proportional to the area of the window as drawn, each diagram would not be a true picture of the window. It would give a distorted and incorrect view. It would also be wrong in perspective as a drawing.

Mr. Molesworth publishes with the book a planisphere and a tracing therewith to note the path of the sun.

In a mathematical treatise of this kind one should at least state one's data correctly. However, Mr. Molesworth states on page 8 that the variation of the compass in England is about $20\frac{1}{2}°$ west, whereas at the present time it is approximately 16° 20′ west for London. An example is then worked out, taking the latitude at 45°, which would be correct for Turin and the region about Sebastopol, but is scarcely of much use for the metropolis. Perhaps, however, Mr. Molesworth considers that his theories might not be accepted by the tribunals in this country.

As the sun has a different declination each day, it is therefore obscured by an obstruction for a longer or a shorter period; hence a separate diagram would theoretically have to be made for each day throughout the year if the total amount lost during the year is required to be ascertained. No allowance is made in this treatise for clouds, which, of course, vary considerably in different parts of the country. Another point that appears to have been overlooked in the first part of the book is that the varying values of the angle of incidence of the sun upon the windows is not taken into account.

In the second part of the work, under the heading of "Diffused Light," Professor Robert Kerr's theories, published in 1865, are again enunciated. Professor Kerr undoubtedly produced a very ingenious scheme, but its great defect lies in the fact that reflected light is not taken into consideration. It will be a necessary corollary to the theories enunciated by Mr. Molesworth, that if no sky is visible there will be no light in a room at all; or that if there be such light, it will prove of no value.

The point that most writers overlook entirely is

the fact that the distance of the obstructive erection from the building owning the easement is not taken into account, provided that the angle of obstruction is not increased. The reflected light obtained from such area is often of immense value.

Mr. Molesworth's work is an ingenious production, but as the cases of damage by direct sunlight alone are very rare, and as, of course, it is useless for determining the injury to the best light one can obtain, viz. from the north, it will not be of great practical value, and the principal part of the book relating to diffused light was published by Professor Kerr thirty-eight years ago.

An Appendix has been added to the book which provides rather interesting reading. Mr. Molesworth states that four data are required to obtain the variations of the compass, namely:—

(1) The latitude of the place.
(2) The declination of the sun.
(3) The bearing of the sun by compass.
(4) Either (*a*) the local mean time or
(*b*) the sun's altitude.

Surely it would be simpler just to take in the bearing of the North Star instead of multiplying calculations!

In great circle sailing he also suggests the use of the planisphere, which surely can be fairly likened to the cracking of a nut with the Nasmyth hammer, when by spherical trigonometry one can obtain the courses and distances in a much shorter time. The planisphere is indeed an ingenious production, but it will scarcely prove so useful to architects or to those who go down to the sea in ships as the author seems to imagine.

H. Phillips Fletcher.

PERSPECTIVE.

Perspective at Sight—R.'s Method. Diagrams for Half Imperial Perspectives. 7s. set net. H. W. Roberts, 4, Wittinpoll Street, Ipswich. [Sold by B. T. Batsford, 94, High Holborn.]

The large diagrams for half imperial perspectives in connection with R.'s method are now published; and those who possess the small book and diagrams, and find them useful, may be glad of the opportunity of obtaining the larger ones.

Being printed on transparent paper, by turning them about each diagram can be used for views from different points, and with the aid of glass drawing-boards, as suggested in the explanatory notes, perspective sketches can be made on thick paper. The addition, on the large diagrams, of lines divided to scale and affording points from which slight projections can be obtained, is a great improvement, while by the employment of "sympathetic lines" it is possible to obtain points set back from the faces of the building.

No doubt the method will prove useful to art teachers and students, draughtsmen in the furniture trade, and others who wish to produce rapid sketches of small objects in perspective, and roughly to scale.

As pointed out previously, it may assist the architectural student, while designing, to realise the general outline and proportion of his group, if he is not able to do so by other means, but it is not intended to supersede the usual system employed for producing carefully drawn architectural perspectives. Geoffry Lucas.

ALLIED SOCIETIES.

THE GLASGOW INSTITUTE.

The Housing Problem.

At the Annual General Meeting of the Glasgow Institute of Architects, held 7th April 1903, the following remarks were made by the President, Mr. Horatio K. Bromhead [*F.*]:—

It appears to me that the most remarkable occurrence of the past year is the way in which the Housing Question has been thrust forward. It seems to have divided itself into two parts: the Housing Problem and the Housing Influenza. Let me get rid of the latter first. A prominent London M.D. identifies influenza in the following way: It spreads by infection; it may attack anyone, has no fixed period of development, and there is no certainty of its development. The forms it may take depend upon the weak parts of the subject, and are so variable as to be protean. Generally the intellect is dulled, the tongue foul, and the attack obstinate. The Housing Influenza corresponds. It may attack Liberals who are out-and-out free-traders. It causes people to advocate urgently a municipal monopoly that is in rank defiance of free trade, and it is beginning to destroy the legitimate business of house building and holding, thus actively defeating the very cause they have so earnestly at heart. They seem incapable of imagining that what they advocate is gradually reducing the natural supply of small houses, and is most cruel to the poor they wish to help. They see it is getting worse, but obstinately shut their eyes to the cause. There are even those who think it is clever to exaggerate misrepresentations of the owners and holders and builders of small houses, and they do not seem able to understand that this is causing moneyed people to think that it may be very unwise to put money in small houses.

Now, what is the Housing Problem? It is a scarcity of houses of the kind the poor would like to live in. Usually the subject is regarded as though it were a jellyfish, without any backbone of its own; something that is nasty and must be pushed with a stick, and not handled kindly. But the backbone of the subject is the volition, the will, the desire, of the poor. Some people

will at once say, "Ah! that is the real difficulty. Many of the poor don't know how to live happy, healthy lives." If that is so, why not teach them? Why not issue a pamphlet showing briefly the best way for a poor man to live? An average of 5*s*. each from those interested would be enough money to give a copy to everyone in the city; and, if it were a clever pamphlet, it would probably wipe away the largest and dirtiest part of the Housing Problem. Evil and dirt are not the true nature of humanity, but only the acquired nature; and there are grand and noble examples of how to live. even in our worst slums.

But we can find out what is wanted by analogy. If the city were taxed to create a new department in which working men could get a really good black frock coat and white gloves at half their value, would working-men go out and buy them? Of course they would not. What the working-man wants is "shoddy" cheap clothes of the free-and-easy shape, suitable for his work. Why should we be prudish at the word "shoddy"? Lots of the well-to-do classes wear shoddy in their holidays, and live in houses that are very shoddy, and enjoy living there. This is partly because it suits their pockets. It is shoddy houses that are wanted—cheap and wholesome houses that a man can pay an honest rent for, without the degradation of knowing that he is being made a pauper of by having his rent partly paid by taxes on other people.

How are we to get these houses? If the cruel exactions of the Glasgow Police and Building Acts were altered, and we got rid of our purse-pride about the cost of our buildings, and strove to have, right within the city bounds, districts where our working people could live cheaply and comfortably, and yet where capital would not be cheated, we should have an ideal before us that would lead in a sound direction.

It is the essence of our healthy cities that they have been built under municipal control. There can be no such control by a municipality over itself. London is a wonderful example of health, considering its age and size; and its secret is that it has clear, distinct laws that are not subject to any person's interpretation of them, and the energies of its officials are not hampered by a ridiculous pretence of looking after the rights of adjoining proprietors.

A million of municipal money would only be a drop of what is required for Glasgow—only enough to further disorganise private enterprise and create further overcrowding and misery. Glasgow is marvellously powerful, but the Housing Problem is infinitely too large for it. In the Liverpool City Council, in October last, it was estimated that if they went on building for 2,000 people every year for fifty years they might make up arrears. That probably does not allow for the increase of the city. In Glasgow there can be no doubt about the effect of municipal housing. What may be done by the municipality must simply stifle private enterprise and create a greater need for more to be done.

The letter to the Lord Provost by Dr. David Murray, in connection with this matter, is of two-fold importance. The reception this letter met with indicates the masterful way in which the Corporation are inclined to handle the subject, and also how clearly capital understands that. Secondly, it shows that there is capital in the hands of those who would gladly attend to the Housing Question if it could be done without blind interference to render it financially impossible.

What we want is, not a masterful dealing with the subject that will not allow anyone else to do it, but a masterly fostering and guidance of what ever so many people want to do in a plain, straightforward, business-like manner that will bring an abundance of the good that is wanted. The bird that lays the golden eggs is being killed!

If our rulers were to give up the attempt to do the work themselves, and were to assert their own superior position, and say, We will see it done, done well, done economically, done cheaply, done profitably, done with a sound, healthy result; we will remove the unnecessary restrictions which now make these houses dearer than they need be; we will have the laws altered and made reasonably mild; we will have the revisions in print, and then we will enforce them and nothing more—then confidence might be restored.

If it were made possible, on free-trade lines, then there would be plenty of competition, and there would be sound, healthy, moderate rents and sound, healthy, moderate profits also. Both must be free to go together. There would also be a good deal of extra work created, the half of which would be wages to workmen.

Competitions are still a trouble, owing to their being so often in the hands of people who have not enough knowledge to manage them properly. Edinburgh holds the field for wild doings. There the Lunacy Authorities had a competition, and chose the most expensive design, which professed to cost £238,000 for a lunatic asylum for 1,000 inmates. Later we heard that the work was commenced. Then followed the startling news that the cost would be about £800,000, equal to £800 per bed. Then we heard a whisper of £500 per bed; afterwards, that an experienced architect from the South had been consulted about reducing the cost. It must be a grand thing to be a pauper lunatic in Edinburgh! I wonder how many mansions and grand houses there are in Edinburgh that have cost as much as £500 per bed. There must also be something delightfully fascinating in being able to go ahead like this, and put on rates and taxes for it.

We cannot match that in Glasgow—at least

not at present—but we don't know how the Municipal Housing Scheme will develop. We have, however, the Royal Infirmary Reconstruction Scheme still on the horns of a dilemma. The governing powers there had a plan that, in American phraseology, "can't be beat," and they issued this plan to a few architects in a competition for decorating it. But, alas! architectural human nature is weak. Not only did several of the competing architects venture to improve—or should I say alter?—the immaculate plan, but the Architectural Assessor considered these the best, and gave his award accordingly. The Committee, however, were equal to the emergency. They overruled the Assessor's award, and chose the design that most closely followed their own.

THE LEEDS AND YORKSHIRE SOCIETY.

The late Edward Birchall [*F.*].

It is with much regret we have to announce the death of Mr. Edward Birchall, at the age of sixty-five years, which occurred at his residence in Leeds on the 6th ult. after a few days' illness. A member of an old Leeds Quaker family, well known in the staple trade of the city, his early schooldays were spent at Broomfield House, Headingley, which were followed by some additional years at York, and at a well-known Friends' Boarding School at Tottenham. Returning to Leeds, he was articled to Mr. William Perkin, an architect who enjoyed a considerable local practice, and, his indentures completed, he proceeded to London and spent some time in the office of Sir George Gilbert Scott, who was then at the height of his career. The knowledge of ecclesiastical architecture that he there acquired was destined to stand him in good stead and prove of much service to him in his future work. He commenced practice in Leeds in the early sixties, and had not long to wait for commissions. It is interesting to note that his first work of importance was a Meeting House for the Society of Friends in his native town, which he designed in the Italian style to meet the wishes of his clients. Although he was educated in the Gothic School, this building is one of the most successful examples of his work. Correct as regards its exterior, he allowed himself some license in the interior, where some of the detail is reminiscent of his earlier studies. The writer of this notice spent three years in Mr. Birchall's office, and for a few of the following particulars he is indebted to Mr. Walter A. Hobson, another former assistant who was associated with him for a much longer period. Amongst churches which Mr. Birchall rebuilt, added to, or restored, may be mentioned Tadcaster, Enderby near Leicester, Wath near Ripon, Roundhay, and, finally, the Church of All Hallows in Leeds, carried out in conjunction with Mr. John Kelly, who was his partner during the latter years of his practice. He was the architect of the Institution for the Blind in Albion Street, the Convalescent Home at Meltham Mills, near Huddersfield, and several residences for his numerous friends and clients in Leeds, Harrogate, and elsewhere, including Tylney Hall in Hampshire. A large cloth warehouse for Mr. Walter Stead, in Wellington Street, Leeds, was one of his earlier commissions, and other commercial premises were erected from his designs in Basinghall Street for Messrs. Marsh, Jones, Cribb & Co., and also for Mr. Alfred Harris at Kirkby Lonsdale. Possessed of ample means, he did not push his practice, but carried it on in a somewhat old-fashioned, leisurely manner, and eight or ten years ago he retired from active work. He was elected a Fellow of the Institute in 1871, after eight years as an Associate. A member of the Leeds and Yorkshire Architectural Society at its foundation in 1876, he served it as President during the years 1883–84, 1884–85, and proved a genial host to the lecturers who visited the town during his time of office. He had literary and artistic tastes, took much interest in archæological research, and was a member of various societies organised for the promotion of these objects. A liberal and kind friend, he will be greatly missed by a large circle of acquaintance.—W. H. Thorp [*F.*].

MINUTES. XII.

At the Twelfth General Meeting (Ordinary) of the Session 1902–1903, held Monday, 20th April 1903, at 8 p.m., the President, Mr. Aston Webb, A.R.A., F.S.A., in the Chair, with 25 Fellows (including 5 members of the Council), 10 Associates (including 2 members of the Council), and numerous visitors, the Minutes of the Meeting held 30th March [p. 312] were taken as read and signed as correct.

The Secretary announced the decease of the following Members:—Edward Birchall (Leeds), elected *Associate* 1863, *Fellow* 1871; Francis Edwards, elected *Associate* 1857, *Fellow* 1861; Young Bolton, *Associate*, elected 1882; Richard Philip Day, *Associate*, elected 1882; Colonel John Davis, *Hon. Associate*, elected 1887.

The Secretary announced that at the Council meeting held that afternoon the following gentlemen had been elected to the Fellowship under the proviso to By-law 9, viz.:—

JOSEPH SWARBRICK, of 30 St. Ann Street, Manchester.

JOHN WOOLFALL, *President of the Liverpool Architectural Society*, of Bank Buildings, 60 Castle Street, Liverpool.

The following Associate, attending for the first time since his election, was formally admitted and signed the register, viz. William Edward Brooks.

A Paper by Mr. Edwin T. Hall [*F.*] on Four Modern Hospitals having been read by the author and illustrated by lantern slides, a discussion ensued, and a vote of thanks was passed to Mr. Hall by acclamation.

The proceedings then closed, and the Meeting separated at 10 p.m.